

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Patent Application No. 10/049,277

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A device for determining location of a fault in an underground cable causing an earth leakage path from an internal conductor to earth at the location of the fault whereby, when signal is applied to the conductor, earth leakage signal flows between the earth and conductor at the location of the fault, wherein the applied signal is a multi-frequency signal having at least two frequency components, the device having comprising:
probe means positionable to receive the earth leakage signal, and
means for rectifying a first component of the earth leakage signal corresponding to ~~one~~
~~said a first~~ frequency component of said applied signal, multiplying ~~the a~~ rectified first component of the earth leakage signal with a second component of the earth leakage signal corresponding to ~~another~~~~said a second~~ frequency component of the applied signal and, from the result of said multiplication, determining ~~the a~~ direction from the device to the fault.

2. (Currently Amended) A device as claimed in claim 1, wherein said multiplication multiplying is effected as an array multiplication of sets of time-spaced samples of the first and second components of the earth leakage signal.

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3. (Currently Amended) A device as claimed in claim 1, ~~incorporating further comprising~~ means for detecting and removing signal artifacts due to switching transients or other external interference.

4. (Currently Amended) A device as claimed in claim 1, ~~having further comprising~~ means for determining a confidence indication, indicating a degree of reliability of said result.

5. (Currently Amended) A device as claimed in claim 4, wherein said means for determining [[a]] said confidence indication operates to determine said confidence indication by applying ~~one or more~~ selected criteria to said result.

6. (Currently Amended) A device as claimed in claim 5, wherein said selected criteria ~~is or~~ includes the ratio between maximum positive or negative excursions of said result, and the means of said result.

7. (Currently Amended) A device as claimed in claim 5, wherein said selected criteria ~~is or~~ includes the at least one of a signal-to-noise ratio of the result signal ~~and/or and~~ said signal components.

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8. (Currently Amended) The device as claimed in claim 5, wherein said selected criteria ~~is or~~ includes at least one of the absolute signal strength of the result signal, ~~and/or and~~ said signal components.

9. (Currently Amended) A method for determining location of a fault in an underground cable, wherein the method comprising:

applying a signal ~~is applied~~ to the cable to cause generation of an earth leakage signal from an internal conductor of the cable to earth, at the location of the fault, the applied signal being a multi-frequency signal having at least two frequency components,

receiving the earth leakage signal, ~~and~~

rectifying a first component of the earth leakage signal corresponding to ~~one~~ a first frequency component of said applied signal,

multiplying ~~the~~ a rectified first component of the earth leakage signal with a second component of the earth leakage signal corresponding to ~~another~~ said a second frequency component of the applied signal, ~~and, from the result of said multiplication,~~

determining ~~the~~ a direction from the device to the fault based on a result of said multiplying.

10. (Currently Amended) A method as claimed in claim 9, wherein said ~~multiplication~~ multiplying is effected as an array multiplication of sets of time-spaced samples of the first and second components of the earth leakage signal.